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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,778	03/30/2004	Pushpito Kumar Ghosh	03108/0201121-US0	4940
7278	7590	06/16/2005	EXAMINER	
DARBY & DARBY P.C. P. O. BOX 5257 NEW YORK, NY 10150-5257			HERTZOG, ARDITH E	
			ART UNIT	PAPER NUMBER
			1754	
DATE MAILED: 06/16/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/814,778

Applicant(s)

GHOSH ET AL.

Examiner

Ardith E. Hertzog

Art Unit

1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/30, 8/23 & 11/9, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☒ Claim(s) 1 and 5-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/9, 2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Information Disclosure Statement*

1. Receipt is acknowledged of the information disclosure statement (IDS) filed November 9, 2004. As the submission is in compliance with the provisions of 37 CFR § 1.97, the IDS has been considered, in accordance with the enclosed PTO-1449. In addition, it is respectfully noted that the listing of further references in the specification is not a proper IDS. 37 CFR § 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." **Therefore, unless the references have been cited by the examiner on form PTO-892 (or are noted on the PTO-1449), they have not been considered.**

### *Abstract*

2. Applicant is respectfully reminded of the proper language and format for an abstract of the disclosure:

The abstract should be in narrative form... **within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length** since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. (MPEP § 608.01(b), emphasis added)

3. The abstract of the disclosure is objected to, because: i) it is over 200 words long; and ii) the acronym "MOP" is not defined. Appropriate correction is required.

***Claim Objections***

4. Claim 1 is objected to under 37 CFR § 1.126, because it is not numbered.

Appropriate correction is required.

5. Claims 5-21 are objected to under 37 CFR § 1.75(c) as being in improper form, because a multiple dependent claim (MDC): i) cannot serve as basis for any other MDC and/or ii) should refer to other claims in the alternative only. See MPEP § 608.01(n), noting that: i) MDC's 5-9, 11-18, 20 and 21 each improperly depend upon at least MDC 4 (claim 10 correspondingly affected since dependent upon improper MDC 7); and ii) MDC 19 does not refer to "claims 1-3" in the alternative only. **Accordingly, as the intended scope of claims 5-21 cannot be accurately determined, they have not been further treated on the merits.**

***Minor Informalities***

6. The disclosure is objected to, because of the following minor informalities:

a. The word "desulphatation" is used throughout the specification; presumably, "desulphation" should be used instead.

b. At page 4, line 9, after "Chinese Patent", it is suggested that "No. 1281822 corresponding to application" be inserted for clarity (note reference W on enclosed PTO-892).

c. "While there is no set statutory form for claims, the present Office practice is to insist that each claim must be the object of a sentence starting with 'I (or we) claim,' 'The invention claimed is' (or the equivalent)" (see MPEP § 608.01(m)).

- d. In claim 1, step (ix), "MOP" should be revised as "muriate of potash (MOP)" for clarity.
- e. In claim 1, step (xi), "desulphation" is misspelled.
- f. The period is missing from the end of claim 2.
- g. In the preamble of each of dependent claims 2-4, it is suggested that "A" be replaced with "The", since these claims are, again, dependent in form.
- h. In claim 3, after "selected from", "the group consisting of" should be inserted for proper Markush group language (see MPEP § 2173.05(h) I.).

Appropriate correction is required.

### ***Specification***

7. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR § 1.75(d)(1) and MPEP § 608.01(o). **Clear** antecedent basis for the following claim limitations has not been found:

- a. that "the bittern contains K, Mg and SO<sub>4</sub> in concentrations that make it suitable for kainite production", per claim 2;
- b. the "bittern with higher potassium content and which also requires the least evaporation to produce kainite-type mixed salt" of claim 3; and
- c. the component ranges of claim 4.

Clarification and/or appropriate correction is required.

***Claim Rejections - 35 U.S.C. § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Said claims are considered vague, indefinite, and/or confusing, due to antecedent basis problems in the independent claim 1. In claim 1, step (v), "the gypsum produced in step (iv)" and "the MgCl<sub>2</sub>-rich filtrate" lack antecedent basis; it is thus suggested that "to produce gypsum" be inserted after "CaCl<sub>2</sub>" in step (iv) of claim 1, that "the" be deleted before MgCl<sub>2</sub>-rich" in step (v) of claim 1, and that "MgCl<sub>2</sub>-rich" be inserted before "filtrate" in step (vii) of claim 1. **Further** in claim 1, step (xi), "the slurry" and "the cake" lack antecedent basis; it is thus suggested that "to form a slurry" be inserted after "hydrated lime" in step (x) of claim 1 **and** that "resultant filter" be inserted before "cake" in step (xi) of claim 1. **In addition**, the "water from step (vi)", as recited in step (viii) of claim 1, lacks sufficient antecedent basis. Appropriate correction of all aspects of this rejection is required.

10. Claims 1-4 are **further** rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Said claims are considered **further** vague, indefinite, and/or confusing, for the following reasons: The phrases, "the required quantity" (per claim 1, step (vii)), "appropriate quantity" (per claim 1, step (viii)), and "concentrations that make it suitable" (per claim 2), are considered unclear, since

they do not adequately define the corresponding reactant/component amounts. That is, it is respectfully submitted that one of ordinary skill in the art would not readily recognize what would or would not comprise a “required” or “appropriate” quantity, nor “suitable” concentrations, and thus the metes and bounds of the claims are unclear. This aspect of this rejection could be overcome as follows: in claim 1, step (vii), replace “the required quantity of” with “MgCl<sub>2</sub>-rich” (in keeping with the step (vii) suggestion in paragraph 9. above); in claim 1, step (viii), replace “appropriate quantity” with “an effective amount”; and revise the body of claim 2 to read, “wherein the bittern contains effective amounts of K, Mg and SO<sub>4</sub> suitable for kainite production”. **Also**, the phrase “kainite **type** mixed salt” (emphasis added) (per claim 1, steps (i) and (ii), and claim 3) is considered indefinite, because it is unclear what adding “type” is intended to convey; that is, how is a kainite **type** mixed salt different from a kainite mixed salt? See MPEP § 2173.05(b), E. **In addition**, the phrase “by known method (per claim 1, step (xii)) is considered unclear, in failing to adequately define the inferred methods. That is, it is respectfully submitted that one of ordinary skill in the art would not readily recognize what would necessarily be deemed a “known” method, and thus the metes and bounds of the claims are unclear. **Lastly**, the use of “preferably” and “such as” renders claim 3 further indefinite, because it is unclear whether the limitations following these terms are part of the claimed invention. See MPEP § 2173.05(d). Appropriate correction of all aspects of this rejection is required.

***Allowable Subject Matter***

11. Claims 1-4 would be allowable if rewritten or amended to overcome all 35 U.S.C. § 112, second paragraph, rejections set forth in this Office action.

12. The following is a statement of reasons for the indication of allowable subject matter: As stated in the Background section of US 6,315,976 B1, "The prior art has established countless methods of preparing potassium sulfate" (see col. 1, lines 16-17), with the prior art of record, as cited on the enclosed PTO-892, representative of various potassium sulfate preparation processes from brine (i.e., bittern) and/or potassium-compound containing minerals, such as the kainite, schoenite and/or carnallite intermediates of the instant claims, which may include recycle stream(s) of filtrate and/or mother liquor.<sup>1</sup> **However**, the references of record, whether considered alone or in combination, fail to teach or to have suggested **integrated** processes for the preparation of sulphate of potash (i.e., potassium sulfate) **from bittern** comprising the **very specific combination** of fourteen steps **required** by applicant's independent claim 1 (upon which instant claims 2-4 ultimately depend). Accordingly, instant claims 1-4, again, **if** rewritten per paragraph 11. above, would be considered allowable over the prior art of record.

***Conclusion***

13. Any inquiry concerning this communication should be directed to Ardith E. Hertzog at 571-272-1347. The examiner can normally be reached on Monday

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<sup>1</sup> (with US 2003/0080066 A1 (and corresponding patent US 6,776,972) cited since discussed in applicant's specification)



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through Friday (from about 8:00 a.m. - 4:00 p.m.).


14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley S. Silverman, can be reached at 571-272-1358. The fax phone number for the organization where this application is assigned is 703-872-9306.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. For any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



AEH

June 3, 2005



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